

ITH the possible exception of the gamecock and buildog, conflicts between domesticated animals are usually of short duration. Endthe contestants taking no casualties to speak of and often the vanquished is as unmarked as the victor when it speeds away from its stronger adversary. But when wild creatures of the plains or jungle meet to settle an argument the contest generally never is decided until one of the participants is hors de combat and possibly devoured by the victor.

This great division of natural history has furnished many such combats, some of them between natural enemies, while others are staged by wild animals that seldom have occasion to meet each other on the field of battle. Theodore Roosevelt's description of the battle between a non-poisonous massurama snake and the deadly fer-de-lance, which he witnessed while on his memorable exploration of the unknown jungles of the Amazon in 1913, furnishes ample proof of the desperate contests that take place whenever natural enemies meet. In his book, "Through the Brazilian Wilderness," Roosevelt vividly describes this struggle for mastery in the following words:

"It was the fer-de-lance that began the fight. It showed no fear whatever of its foe, but its irritable temper was aroused by the proximity and actions of the other, and like a flash it drew back its head and struck, burying its fangs in the forward part of the massurama's body. Immediately the latter struck in return, and the counter attack was so instantaneous that it was difficult to see just what had happened! There was tremendous writhing and struggle on the part of the fer-de-lance; and then, leaning over the knot into which the two serpents were twisted, I saw that the massurama had seized the fer-de-lance by the lower jaw, putting its own head completely into the wide, gaping mouth of the poisonous snake. The long fangs were just above the massurama's head, and it appeared that they were once again driven into the massurama, but without the slightest effect.

"Meanwhile the massurama was chewing hard and gradually shifted its grip little by little until it got the top of the head of the fer-de-lance in its mouth, the lower jaw of the fer-de-lance being spread out to one side. The venomous snake was helpless; in vain it writhed and struggled. But nothing availed it. Once twice the massurama took a turn around the middle of the body of its opponent, but it did not seem to press hard and apparently used its coils chiefly in order to get a better grip so as to crush the head of its antagonist or to hold the latter in place. This crushing was done by its teeth, and the repeated bites were made with such effort that the muscles stood out on the massurama's neck."

Col. Roosevelt later continues the story by telling how the harmless massurama, which is a blackish serpent something like our own king snake of the Southern States, proceeded to dispose of its conquered ad-

"When satisfied that the fer-de-lance was dead the massurama began to try to get the head in its mouth. After a period of continued effort the head finally was taken completely inside and swallowed. After this the massurama proceeded deliberately, but with unbroken speed, to devour its opponent by the simple process of crawling outside it, the body and tail- of the fer-delance writhing and struggling until the last. Net only was the massurama totally indifferent to our presence but it was totally indifferent to being handled while the meal was going on. Several times I placed the combatants in a more convenient position to see just what was taking place, and the ease and certainty with which the terrible poisonous snake was mastered gave me the heartlest respect and liking for the easy going, good natured and exceedingly efficient serpent which I had been holding."

Rudyard Kipling has immortalized the little Indian mongoose, that tiny, nervous creature that takes perfect delight in conquering the exceedingly venomous cobra-de-capello, the most terrible snake of all Oriental countries. Everybody is familiar with the manner in which this nimble animal, with a lightninglike movement grasps the cobra in the neck, right at the base of the skuil, and sinks its sharp teeth straight into the spinal cord of the serpent. Motion pictures have been taken of these combats, and so rapid is the action of the mongoose in getting its hold that even the lens of the camera is taxed to the utmost to catch its lithe form without blurring the film. Another still smaller animal, the lerot, destroys venomous snakes by engaging them in combat, but of course its size prevents it from being so efficient as the mongoose. The latter-Rikkitikki-tavvi," as Kipling calls it in one of his stories-can always be depended upon to come off victorious in every encounter with a cobra, and for this reason the mongoose is usually the most prized pet that the inhabitants of India have in their homes.

Nor must we forget our own hog as a snake destroyer, as those allowed the freedom of the woods do not hesitate to do battle with

these reptiles. Like the mongoose and lerot, the hog is immune to the bite of venomous snakes, its immunity being due to lack of blood vessels near the surface of the skin that could be pierced by the fangs of reptiles, which it speedily puts out of action by grasping them in the middle and shaking them violently from side to side. Many hunting hounds also destroy snakes in this manner, although they are not immune to the bite.

One of the oddest combats between reptile and beast was once witnessed by an explorer endeavoring to locate the source of a river in the Amazon district of Brazil. While hacking his way through the almost impenetrable jungles with his machete he was startled by a fearful scream quite near. So humanlike was the cry and so great the commotion going on in the underbrush that despite the evident danger he cautiously advanced and in the dim light of the jungle saw a jaguar fast in the coils of a boa constrictor. The big snake had the side of the jaguar's head in its mouth, two colls around the jaguar's body and its tail wrapped around a nearby tree

Whenever the jaguar would cease its spasmodic struggles for even a second the boa would unwrap enough of its tail to add another coil or two around the big cat's body. All of this was being done despite the sharp claws of the jaguar, which were lacerating the skin of the huge serpent, each addition of coil being accomplished so anickly that finally the legs of the struggling laguar were incased in their grasp. The contest was then as good as ended, for the boa suddenly let go of the jaguar's head and with its tail still anchored to the tree put all its strength of constriction into its coils. As it did this the body of the jaguar was lifted into the air and with one despairing cry lay motionless in the powerful folds that had snuffed out its life. Just how the contest began will never be known, but it is certain that this particular boa probably was careful to eliminate the sharp clawed jaguar from its list of prey during its future quests for food or exercise of its coils.

It might be thought that the antelope would hesitate to square with a lion, but some of these creatures are quite large in size as formidable weapons as the fangs of the supposed "king of beasts." One of these large species is called the oryx, and an English naturalist relates an exciting combat between a bull oryx and a hungry lion endeavoring to pick off one of the antelope herd as it went down to drink, while darkness began to settle over the tropical landscape.

Several times the herd went forward to the hole to drink before the lion let its hunger overcome discretion and sprang forward to the attack. But quick as it leaped the leader of the oryx herd was still quicker and lowered its horns to receive the impact, placing its big body directly in front of the calf that the lion had intended to snatch for dinner. It was now too late for the lion to change the direction of its leap, so all it could do was to land directly upon the two bayonet pointed horns of the big bull that had set for the attack, The shock of the resulting impact was terrific and for several minutes the scene of battle was obscured by the clouds of dust that arose. All was chaos as the lion roared and writhed in its efforts to disengage the sharp thirty inch horns that had gone entirely through its body, while the comparatively unhurt oryx struggled to free itself and leave the lion to die of the wounds inflicted. But fate was against the brave oryx, for in its efforts to dislodge the heavy body of the lion its neck was broken and both antagonists were dead when the naturalist went to the place of conflict next morning.

Many are the contests that take place for the possession of water holes during a dry season, as most animals are averse to quenching their thirst in rivers or large lakes if they can possibly avoid it. This is occasioned largely by the enormous crocodiles that infest these places in great numbers, and these reptiles have the habit of anchoring their tails around anything near by, so that with this assistance they can pull almost any beast down under the water,

Mr. Max Fleishman, an inveterate hunter of big game, tells of a conflict he once witnessed in Africa between one of the largest rhinoceri he ever saw and what was evidently a crocodile. The rhino had come down to the stream for a drink and its customary mud bath, when, just as it was preparing to leave the water, something seized one of its hind legs and a furious struggle began. The big animal strained and pulled, but despite all effort it was gradually dragged into deep water? finally disappearing beneath the surface. Mr. Fleishman obtained several pictures showing the different stages of the contest, which lasted for about half an hour, and it is supposition that the crocodile must have been of exceptional size and had its tail securely anchored to some obstruction on the bottom

A conflict between two elephants, and especially those in captivity, occurs very seldom, but such a contest actually took place in the London Zoo some years ago. It all began when one of the ele-



phants named Tippoo became angry and slew a collie friend of Emperor, the leader of the herd. For a long time the collie and Emperor had been inseparable companions, a fact which seemed to ex-

cite a great deal of jealousy on Tippoo's part. Finally Tippoo could hold his temper no longer, so one afternoon he broke into a jealous rage and dashed wildly across the inclosure, trumpeting shrilly as he brushed the other elephants in his path. Reaching a point near where Emperor and his collie friend were standing, Tippoo suddenly reached out his trunk and snatched the dog from the ground. Waving the comparatively small animal around in the air for a moment he let it go, much as a rock is thrown from the ancient type of sling, the poor collie landing directly in Emperor's face.

For a slight interval Emperor gazed at the body of his little friend as it lay perfectly still on the ground. Then suddenly the pitiful look left his eyes and he seemed transformed into an irresistible demon. Giving an angry squeak, which sounded much like that of a wheezy trombone, he dashed away in pursuit of Tippoo, which had raced away to the opposite side of the inclosure. Emperor soon overtook Tippoo and began to belabor him with his trunk, each of the blows sounding almost like the boom of a cannon, while the guilty elephant trumpeted with fear and pain. Being the larger of the two Emperor was endeavoring to wrap his trunk around Tippoo's foreleg so as to trip him, and had he succeeded in doing this he would have used his big tusks to great advantage.

Meanwhile the Hindoo keepers were doing all in their power to separate the combatants, but their efforts were fruitless until one of their number stood right in front of the charging Emperor. seized one of the pachyderm's big tusks in both hands and swung himself up. All the while he was shouting excitedly in Hindoo to the elephant, and Emperor must have understood what was being said, for he suddenly stood stock still with his trunk high in the air, with the keeper swinging on his tusk, and eventually calmed down. Since that time these two elephants must be kept in separate inclosures, for Emperor still misses his little friend and would yet make Tippoo pay dearly for the result of his jealous rage if he ever

A notable duel between two big African lions took place in this same zoo. To show his control over the animals Henly, who had daily charge of them, one time went into the cage and attached a bowknot of ribbon to each of their manes, the blue ribbon going to Claudius and the red to Nero. These two Roman named lions were brothers, born in captivity together, and though fully grown were still as playful as kittens. Claudius appeared worried by the ribbon on his mane and after pulling at it for some time without being able to remove it began to sulk and finally retired to a corner of the cage and went to sleep, while the breeze fanned the ribbon back and forth.

Nero, who was still wakeful and alert, noticed the swaving ribbon and his playful feline instincts were instantly awakened. He rolled over on his broad back and then quickly righting himself, struck at the uttering ribbon, but after landing on the tiny streamer his big paw continued its onward momentum and finally landed a terrible blow on the sleeping Claudius's nose, which tore into the soft flesh. With a roar of rage Claudius sprang to his feet and felled his astonished brother with the catapulted weight of his bigbody. Before Nero could recover Claudius with a single bound was upon him and the battle was over when his former playful brother's powerful fangs sank into his throat,

It must be said for Claudius, however, that he plainly showed grief for what he had done, and for weeks at a time he would do nothing but pace up and down before the bars of his cage, uttering deep throated growls as if mourning for the brother he had slain. Finally he began to neglect his food and for days at a time would go without even noticing the choice bits of beef thrown into the cage to tempt his appetite. Claudius must have actually grieved himself to death, for he grew thinner and thinner, until one morning the keepers found him too weak to stand. That very evening as they were watching his labored breathing the big cat managed to raise his head and in exceedingly weak tones began his deep throated growls for Nero, but suddenly ceased as his head dropped to the straw on the floor of his cage. Claudius had gone in search

Almost every species of male deer indulge in personal contests that often cause both of the contestants to die from starvation when their horns become so interlocked that the most strenuous efforts of the animals will not disengage them. To find these locked horns is not an uncommon occurrence, and not long ago three pairs of horns were found locked together in the deadly grip that took toll of the lives of the same number of deer. Generally the moose is a peaceful creature, but at certain seasons of the year he becomes seized with violent excitement, during which time he never hesitates to do battle with any living being that happens to cross his path. Hunters of northern Maine have witnessed many of these encounters, some of them often lasting for several hours until one of the com-

batants is rendered hors de combat, or both of them are too weak to continue the struggle.

Nobody would ever think that the clumsy walrus could put to rout other large, agile creatures of the frozen North, but Arctic explorers say that many a polar bear can well testify to the combative ability of this powerful animal, whose clumsiness would seem to bar it from putting up even a creditable defence. However, their long canine teeth are terrible weapons which they can use with much skill at close quarters, and although slow to attack another animal they are most furious when opposed or wounded. The enormous tusks are capable of great execution and have been known to pierce the heavy plankings of a boat, so it is little wonder that even an old walrus will often put to rout a polar bear which had hoped to make a meal of the aged looking creature.

Many instances of combat between the larger members of the animal kingdom could be mentioned, but probably the most interesting battles are those staged by the smaller insects. For instance, Capt. Willard Thomson once witnessed a battle royal between a grasshopper and a spider, both of them being exceedingly large specimens of their kind. The big spider had just finished patching up its web, that had been torn by the insects caught in its silken meshes the day before, when along came the grasshopper and leaped right into the trap. Quick as a flash the spider, which had been lying in wait behind its net, sprang forward and began to weave additional threads around

First, the legs were bound, and the spider had just begun to secure the body when the grasshopper evidently realized the seriousness of its position and began to use the strength of its powerful legs. The web was torn to pieces from its efforts, but the silken strands held to such an extent that the big insect could not entirely free itself before the spider in lightning like fashion had it securely bound once more. So securely was the grasshopper encompassed by the web at this time that although it was about eight times larger than the spider it could not muster strength enough to break the network of tiny threads that held it in a death grip. Capt. Thomson says that immediately after the spider was sure that its victim was incapable of further resistance it sneaked back to its lair and remained there in evident exhaustion for several minutes.

hour later the spider seemed to think that the Captain was anxious to see the captured grasshopper as an evidence of its skill as a noose artist, for it crawled all over the secured insect several times while watching its actions very closely. Ants and various other insects wage actual battles with great armies of their kind, each of the warriors selecting an opponent and coming to grips that mean the end of either combatant, or perhaps both of them. In several Oriental countries contests between individual insects are a

But the natives of Siam go to the finny tribe for their sport in this line. These famous fighting fish are called plakat, and much care is devoted to raising them, the interest in these contests being so intense that the mere license to exhibit them brings in considerable revenue to the royal treasury. For some time before a contest the plakat are fed with the larvae of mosquitoes and other insects frequenting the water, this type of diet seeming to increase the pugnacity of these pugilistic fish.

When the fish are thought to be belligerent enough for a contest two of them are placed together in a large glass globe. For a minute or two neither of them appears to be aware of the other's presence. Like human pugilists they pretend not to be concerned in the matter, other than to swell up with pride as they circle around in the narrow confines of the globe, but it is seen that both are only looking for an opening, when one of them suddenly makes a quick dart at the other, and the bout is on in earnest. They continue biting each other on the fins and body until the referee sees that the winner has sufficiently demonstrated its superiority and then stops the bout before a fatality mars its ending.

ARIOUS attempts have been made to cause the wind to aid the bicycle rider in driving his machine. In the case of certain American and French inventions an apparatus constructed on the plan of a toy windmill is attached to the machine and geared to the front wheel.

Another contrivance also acts on the principle of the windmill, but its motor, instead of having fans facing all one way, is shaped like an empty pumpkin shell, with the segments slightly separated and inclined inward.